Lake Erie Fisheries Assessment Unit
Report 1984-1

# Summer Creel Census in the Canadian Waters of the Western Basin of Lake Erie, 1983

Ontario
Ministry of Natural Resources
Hon. Alan W. Pope
Minister
John R. Sloan
Deputy Minister

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# INTRODUCTION

A roving on-water creel census was conducted in the Canadian waters of the Western Basin of Lake Erie during July and August, 1983. This creel census is a continuation of a study initiated in 1975 to provide fishery management information.

The objectives of the 1983 creel census were:

to quantify the angling catch and harvest particularly of yellow pickerel[1] (walleye) (Stizostedion vitreum vitreum) and smallmouth bass;

to estimate the angling effort and success;

to monitor the age and length composition of the walleye and smallmouth bass harvest;

and to determine the resident to non-resident angler ratio.

Creel census techniques used in the 1983 survey were similar to those used from 1975 to 1982 and year-to-year comparisons can be made directly.

[1] Yellow pickerel is the preferred common name among Ontario anglers for this species and is recognized as such by the Ontario Ministry of Natural Resources. However, the international users of this report recognize the common name walleye (Robins et al. 1980) which is the name used throughout this report.

## DESCRIPTION OF THE STUDY AREA

The study area was confined to part of the Canadian waters of Lake Erie's Western Basin. This area was divided into four sectors in the original study (Duckworth and Paine 1975) which defined fish species distribution and angling effort and success. Least angling effort was expended in Sector III and none of the surveyed anglers caught any walleye. For these reasons, Sector III was omitted from the census from 1976 to 1983. The lake portion of Sector IV was omitted in 1977 for similar reasons. The river portion of Sector IV (the Detroit River fishery) is geographically distinct from the Western Basin fishery and was surveyed and described in a separate report in 1978, 1979 and 1980.

Sector I included waters around the islands to the west of Pelee Island (East Sister, North Harbour, Hen and Chicken Islands). Sector II included the waters around Pelee Island. A description of the boundaries of the two sectors follows:

| | | |
|---|---|---|
| Sector I | (north) | upbound shipping lane |
| | (east) | longitude 82°44'W |
| | (south) | international border |
| | (west) | international border |
| Sector II | (north) | upbound shipping lane |
| | (east) | longitude 82°30'W |
| | (south) | international border |
| | (west) | longitude 82°44'W |

Sectors were subdivided into areas (Figure 1). Sector I was divided into two areas by a line originating from the intersection of longitude 82°44'W with the upbound shipping lane and proceeding at 223° (magnetic) to the international border. Area 1 was northwest of this line and Area 2 was southeast of this line.

Sector II was divided into five areas by boundary lines connecting locations on Pelee Island and specified points on the boundaries of Sector II. The southern boundary of Area 1 is represented by a line connecting the southern tip of Fish Point to the intersection of longitude 82°44'W with the international boundary. The line dividing Areas 1 and 2 extended north from Lighthouse Point to its intersection with the upbound shipping lane. The division of Areas 2 and 3 was described by a line connecting Middle Point to the intersection of longitude 82°30'W with the upbound shipping lane. Areas 3 and 4 were separated by a line connecting Mill Point with a buoy located on the international border at longitude 82°35'W. Areas 4 and 5 were divided by a line connecting Fish Point and the buoy at longitude 82°35'W on the international border.

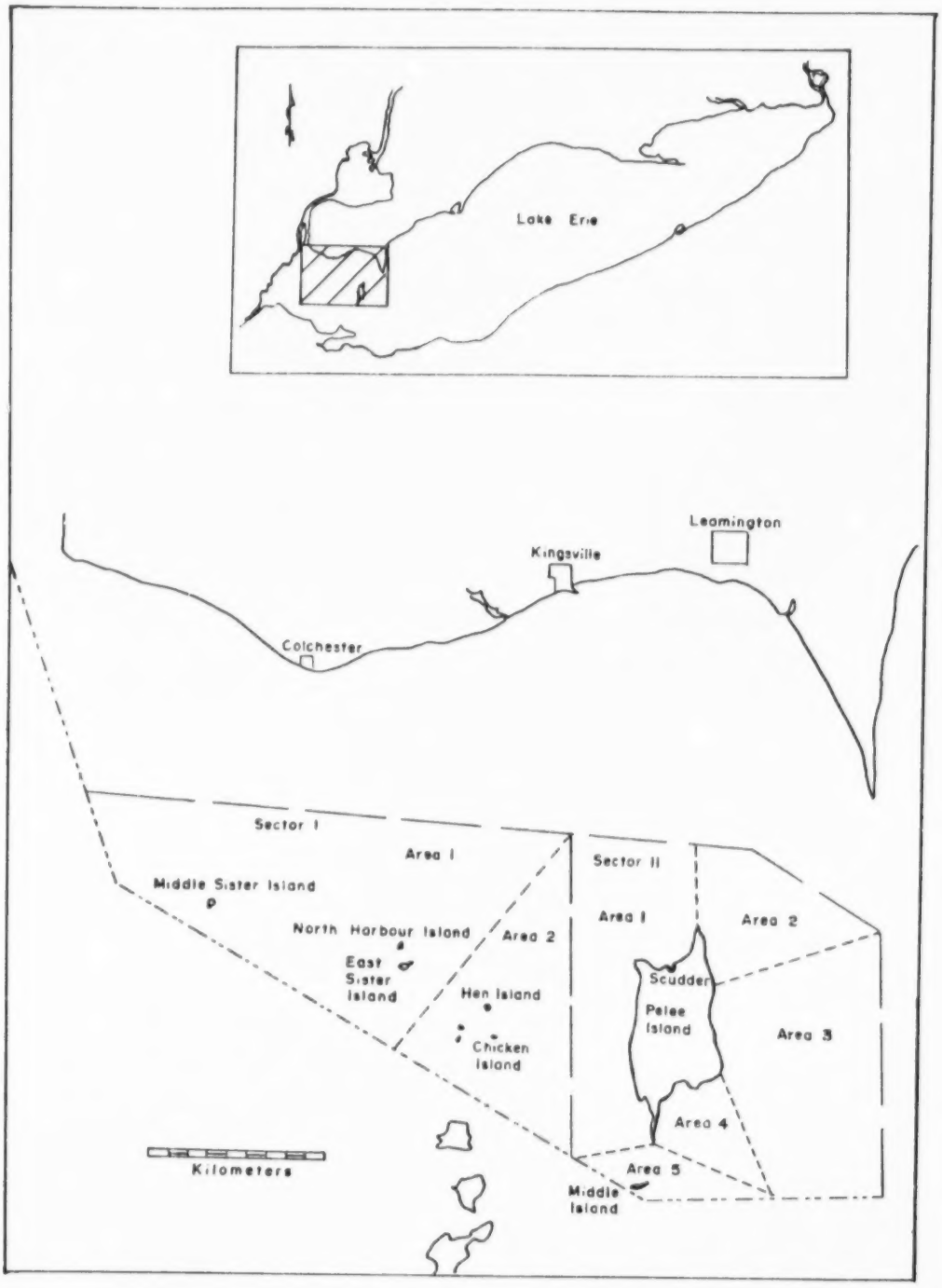


Figure 1. The study area.

# METHODS

## Crew and Equipment

The creel census was done from Scudder, Pelee Island by the Owner-operator of a chartered boat and a census clerk. They used a 7.6-m fiberglass deep-V hull boat powered by a 388 kW engine. A boat of this size was considered necessary to do an efficient survey of the study area. This boat was as capable in reaching the fishing areas as most sport fishing boats.

Sampling equipment included a metric measuring board, thermometer, forceps, knife and water tight containers containing: maps, field forms (Appendix I), scale envelopes, fish identification guide and Ontario Fishing Regulation pamphlets.

## Schedule

The 1983 creel census schedule is outlined in Table 1. Duckworth and Paine (1975) found that a minimal amount of angling was done in the study area during June and September. The survey was scheduled between July 1 and August 31. Alternate sets of weekdays, Monday to Friday inclusive, and all weekend days were scheduled for sampling. Canadian statutory holidays, i.e., Friday, July 1 and Monday, August 1, were classified as weekdays. Four weekend days and five weekdays were scheduled for sampling in each 14-day period. Five consecutive weekdays in each two-week period were not censused. The criteria considered to establish strata within each month (July and August) were sector, area, day-type and census-period. Areas were not considered

independently in scheduling, as sampling in a sector assumed that all areas within that sector would be sampled in a designated period. Sampling patterns were applied systematically to weekdays independently from weekend days. The following pattern was applied to designate the sector to be censused on weekdays:

| | | |
|---|---|---|
| July 11 | Monday | Sector I |
| July 12 | Tuesday | Sector II |
| July 13 | Wednesday | Sector I |
| July 14 | Thursday | Sector II |
| July 15 | Friday | Sector I |
| July 25 | Monday | Sector II |
| July 26 | Tuesday | Sector I |
| July 27 | Wednesday | Sector II |
| July 28 | Thursday | Sector I |
| July 29 | Friday | Sector II |

This pattern was continued in scheduling all remaining weekdays. On weekends, the following pattern was followed:

| | | |
|---|---|---|
| July 3 | Sunday | Sector I |
| July 9 | Saturday | Sector I |
| July 10 | Sunday | Sector II |
| July 16 | Saturday | Sector II |

This pattern was followed in scheduling all remaining weekend days.

Census-period (AM or PM) was assigned to weekdays independently of weekend days. On weekdays, the following pattern was applied to designate the time-period to be

censused:

July 11 Sector I PM
July 12 Sector II PM
July 13 Sector I AM
July 14 Sector II AM
July 15 Sector I PM

July 25 Sector II PM
July 26 Sector I AM
July 27 Sector II AM
July 28 Sector I PM
July 29 Sector II PM

All weekend days were scheduled according to the following pattern:

July 2 Saturday Sector II AM
July 3 Sunday Sector I AM
July 9 Saturday Sector I AM
July 10 Sunday Sector II AM

July 16 Saturday Sector II PM
July 17 Sunday Sector I PM
July 23 Saturday Sector I PM
July 24 Sunday Sector II PM

Census Procedures

Boat counts were made to determine the mean number of boats present within specific strata. Boat count data and interview information were used to estimate angling effort and harvest in the various strata. The census crew was

expected to make two boat counts in each area during one sampling period unless prevented from doing so by weather conditions or mechanical failures. The timing of boat counts within a census-period was not predetermined but was varied to limit sampling bias. Only boats with lines in the water were counted. After the boat counts were completed, usually within an hour, anglers were approached and interviewed.

Estimates of effort were based on partial censuses as well as completed censuses. When surveys were interrupted by poor weather, zero boat counts were assumed for the curtailed portion of the sampling period.

The sampling procedure did not predetermine the number of interviews to be made during a sampling period. The census crew collected catch, effort and angler residency information during the interview. After the boat count and scale sampling requirements were met, the survey crew attempted to interview as many angling parties as possible sampling every i'th boat (i equals frequency factor exceeding time allotment, i.e., 2X, 3X, 4X, etc.) when more boats were present than could be interviewed.

Representative scale samples and length measurements were non-selectively taken from harvested walleye and smallmouth bass. At least 50 walleye and 25 smallmouth bass were to be sampled from each sector each month. The decision to sample a party's fish was made before approaching the party and all walleye and/or smallmouth bass were sampled from the cooperating party to avoid bias.

Results of previous surveys indicate that most angling

was done between 0800 and 2000 h so morning and afternoon periods were defined as six-hour periods, i.e., from 0800 to 1400 h and 1400 to 2000 h, for data analysis purposes (Paine and Witherspoon 1977; Hector 1978; Sztramko 1979, 1980; Witzel 1981; Hyatt 1982, 1983). However, practical considerations, i.e., the eight-hour work day and travel time and the fact that previous surveys indicated censusing between 0800 and 0900 h provided little useful data (Hector 1978), restricted the census to five-hour periods.

Data Analysis

Census data were analysed using a computer program developed by the Lake Erie Fisheries Assessment Unit (Petzold 1980). Estimates of effort, catch and harvest were derived from observed values of same (based on six-hour morning and afternoon fishing periods). Daily estimates were summarized and presented as stratum estimates (Appendix II).

The analysis included scheduled sampling days in which reduced effort was exerted because of bad weather. A second boat count during a census-period provided an estimate of variation in effort especially when adverse weather interfered with a scheduled census.

Effort was reported in rod-hours and in angler-hours; however, the measure of rod-hours was used to derive catch and harvest estimates as it reflects the time actively spent fishing and the number of rods used. Sztramko and Paine (1984) in their historical report on angler creel surveys conducted by Ontario from 1948-1980 in Canadian Lake Erie waters explain that "during the 1974-80 period, angler-hours, which may have been more appropriately

termed "user-hours", was used as a measure of participation in a fishery. Angler-hours was derived from the time which a fishing party actively fished and the number of persons in the fishing party, regardless of whether all individuals in the party fished."

Catch per unit of effort (CUE) for a stratum was calculated by dividing the actual total number of a species caught by the actual total number of rod-hours expended by all anglers in capturing these fish (Appendix II). This, the unweighted CUE, was used in this report as a measure of relative abundance and is used to interpret the distribution of catch and effort in the fishery.

## RESULTS AND DISCUSSION

From July 1 to August 31, 1983, 552 boat interviews with angling parties were conducted. A summary of selected information gathered from angler interviews and boat counts is contained in Appendix IV.

### Distribution of Angling Effort

Anglers expended an estimated 116,649 ±22,423 (95% C.I.) rod-hours in the study area in July and August of 1983 (Table 2). More of the total effort was exerted in August (70%) than in July (30%) and Sector I received more of the total pressure (53%) than did Sector II (47%).

Distribution of angling effort by area and month is shown in Table 3 with Area 2 Sector I (Hen and Chicken Islands) receiving the most pressure.

An estimated 57,985 rod-hours were expended by weekday anglers and 58,664 rod-hours by weekend day anglers (Table 4). Each sector received a mean angling effort of 329 rod-hours during a weekday six-hour fishing period and 815 rod-hours during a weekend day six-hour fishing period (Table 5).

Morning angling was more popular on both weekdays (31% of total) and weekend days (32% of total)(Table 4). Weekday and weekend day afternoons received 19% and 18% respectively of the total angling effort.

Angling effort in the study area increased from 1975 to 1978 (Table 6) then stabilized at lesser levels since then. The 1983 estimated effort of 116,649 rod-hours is a 9% increase over the 1982 estimated effort of 106,566 rod-hours.

Catch and Harvest

An estimated 117,369 fish were caught in the study area of which 59,748 (51%) were harvested (Table 7). The species contributing most numbers to the total catch were: walleye (41%), freshwater drum (33%) and smallmouth bass (18%). Percentage contribution to the total catch by other species was: white perch (4%), white bass (3%), channel catfish (2%) and rock bass, yellow perch and carp (each with <1%). Anglers kept 84% of the captured walleye which represented 67% of the total harvest in numbers. The smallmouth bass harvest contributed 24% of the total in numbers and represented a substantial increase over 1982 when its contribution was 9% of total (Hyatt 1983). Percentage contribution to the harvest in numbers by other species was: white perch (3%), white bass (3%), channel catfish (2%) and freshwater drum, rock bass, yellow perch and carp (each with <1%).

Percentage of anglers seeking a particular species (species anglers) was: walleye (89%), smallmouth bass (27%), white bass (9%), channel catfish (7%) and white perch (5%) (Table 8). Angler preference toward yellow perch was expressed by <1% of anglers in 1983 compared to 9% in 1982 whereas smallmouth bass preference was expressed by 27% in 1983 compared with 13% in 1982 (Hyatt 1983).

The percentage of anglers fishing for walleye was high in both sectors throughout the study. Percent of anglers seeking smallmouth bass was highest (39%) in Sector II during August and lowest (16%) in Sector I during July (Table 8).

The walleye and white bass catches did not change much from 1982 to 1983 but the freshwater drum, yellow perch and channel catfish catches were considerably lower in 1983 (Table 9). The smallmouth bass catch showed a marked increase in 1983 (roughly 2.5 times the 1982 catch) and the white perch catch has increased from zero in 1980 to 4,388 fish in 1983 (4% of total catch).

## Walleye Fishery

### Effort

Anglers expressing a preference for walleye expended 92% of the total rod-hours spent in the census area (Table 10).

### Catch Per Unit of Effort

Walleye anglers caught an estimated 0.396 walleye per rod-hour of angling in the study area in July and August, 1983 (Table 11). The best angling success rate occurred in Sector II during August (0.410 walleye per rod-hour) and the poorest was in Sector I during July (0.360 walleye per rod-hour). The CUE for the whole study area was better in August (0.408) than in July (0.373). Over the season, the walleye angling success rate was slightly better in Sector II (0.404) than in Sector I (0.388).

The CUE for walleye anglers in July and August in each area of Sectors I and II is shown in Table 12. In Sector I, the CUE increased by 127% from July to August in Area 1 and decreased by 2% in Area 2. In Sector II, the CUE increased in Areas 1, 2 and 4 by 143%, 62% and 17% respectively and decreased in Area 3 by 37% from July to August.

The highest success rate (CUE) occurred in Area 3 of Sector II in July. Success rate for the study area was higher in August than in July (Table 11).

Since 1976, the CUE has usually been higher in July than in August and the CUE in Sector II has usually been higher than in Sector I (Table 13). In 1983, the CUE was higher in August than in July but the CUE in Sector II was higher than Sector I.

The CUE of walleye by walleye anglers was first calculated using observed catches and observed effort in 1978 (Table 18). The CUE increased from 1978 to 1979 but decreased each year since then to a low of 0.396 walleye caught by walleye anglers per rod-hour in 1983.

Catch and Harvest

An estimated 47,919 ±12,304 (95% C.I.) walleye were caught in the study area in 1983 (Table 7). Of these, 40,177 (84% of the total catch) or 34,979 kg were harvested (Table 20).

Of the total estimated walleye catch, 46% was taken in Sector II (Table 14). More walleye were taken in August (75%) than in July (25%).

In the 1983 season, the highest portion (39%) of the total walleye catch in the study area came from Area 2 Sector I (Table 15) and the second highest portion (26%) came from Area 3 Sector II.

All areas in both sectors made a higher contribution to the total catch in August than in July except Area 5 Sector II where no angling parties were observed in July or August.

Walleye anglers caught more walleye on weekends than through the week (Table 16) whereas the previous three creel surveys indicated that more walleye were caught during the week than on weekends. More effort (161%) was expended on the average weekend day than on the average weekday. Catch and harvest were higher on the average weekend day (226% and 215% respectively) than on the average weekday and the CUE was higher on weekend days.

Walleye catches by walleye anglers were higher in both sectors in the morning (AM) census-period (Table 17). The CUE was higher in the morning period (AM) in Sector I and in the afternoon period (PM) in Sector II.

Walleye catches increased sharply each year from 7,077 in 1975 to 121,441 in 1978 then declined to 47,919 walleye in 1983 (Table 18). Total effort increased 9% from 1982 to 1983 but the walleye catch decreased 5%.

Age Composition

From 1975 to 1979 a single year class, usually two-year-olds, has dominated the walleye harvest by anglers in Sectors I and II of the Western Basin, Lake Erie (Figure 2). Two- and three-year-olds contributed equally to the 1980 harvest and three- and four-year-olds made up 33% and 40% of the 1981 harvest, with two-year-olds comprising 17% of the harvest. In 1982, two-year-olds once again dominated the harvest with a 60% contribution and this year class contributed the most (48%) to the 1983 harvest as three-year-olds. Two- and four-year-olds contributed 24% and 11% respectively to the harvest (Table 20). It is interesting to note that a ten-year-old walleye was taken

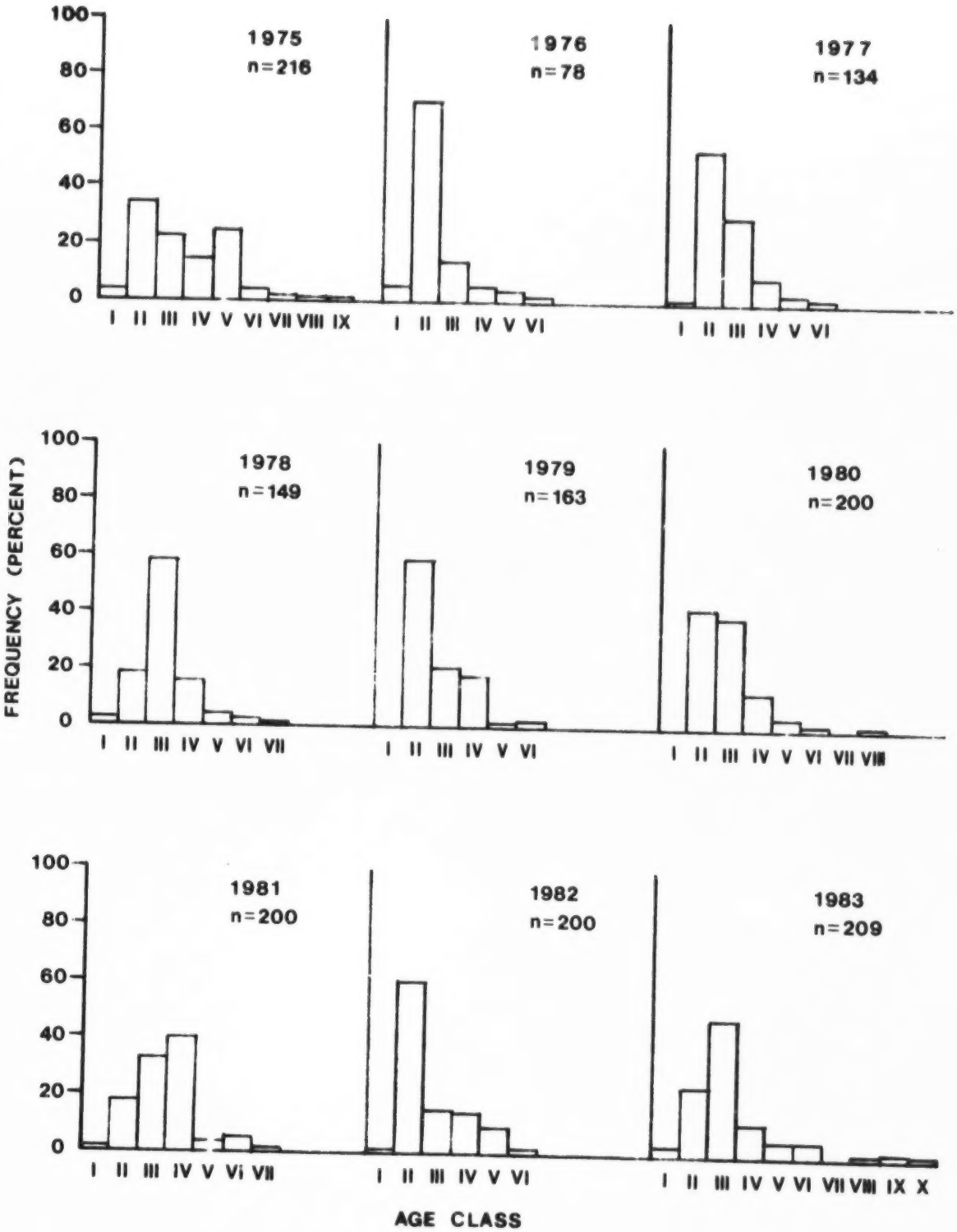


Figure 2. Age frequency histograms for angler harvested walleye in the Western Basin, Lake Erie, 1975-1983.

in 1983 as none of that age-class has been sampled before in the course of these surveys (1975-1982).

Mean length and weight of age-groups of harvested walleye are presented in Table 19. The average total length and total weight of harvested walleye (all age classes) was 440 mm and 871 g respectively.

## Smallmouth Bass Fishery

### Effort

Anglers who expressed a preference for smallmouth bass expended 33% of the total rod-hours spent in the Western Basin (Table 10).

### Catch Per Unit of Effort

Smallmouth bass anglers caught an estimated 0.323 smallmouth bass per rod-hour of angling in the study area in July and August, 1983 (Table 21). The best angling success for smallmouth bass anglers occurred in Sector II during August (0.361 smallmouth bass per rod-hour) and the poorest was in Sector I during July (0.162 smallmouth bass per rod-hour). The CUE for August (0.356) was better than for July (0.236) throughout the study area. Over the season, the smallmouth bass angling success rate was better in Sector II (0.335) than in Sector I (0.303).

In Sector I, the CUE decreased from July to August by 76% in Area 1 but increased by 250% in Area 2 (Table 22). In Sector II, the CUE decreased in Areas 2, 3 and 4 by 29%, 8% and 32% respectively and increased by 112% in Area 1.

The highest success rate occurred in Area 2 of Sector II in July (0.655) and the lowest in Area 1 of Sector I in August (0.096).

Catch and Harvest

An estimated 20,784 ±10,610 (95% C.I.) smallmouth bass were angled from the study area in 1983 (Table 7). Of these, 14,045 (68% of the catch) or 12,270 kg (Table 27) were harvested.

Of the total estimated smallmouth bass catch, 70% was taken in Sector II (Table 23) and 84% was taken in August.

In the 1983 season, the smallmouth bass catch was highest (29% of smallmouth bass catch) in Area 4 Sector II (Table 24) and was nearly as high in Area 2 of Sector I (27%).

The smallmouth bass catch declined from July to August in Area 1 Sector I but increased substantially in all other areas in the study area.

Catch and harvest were higher on the average weekend day than on the average weekday (100% and 106% respectively) but the CUE was higher on the average weekday (Table 25).

Smallmouth bass catches and CUE by smallmouth bass anglers were higher in the morning (AM) period (Table 26) in both sectors. The highest success rate for the study area occurred in Sector II during the morning (AM) period and the poorest rate was in Sector II during the afternoon (PM) period.

Total angling effort by all anglers increased 9% from 1982 to 1983 (Table 6) but the smallmouth bass catch by all anglers increased 161% (Table 9).

Age Composition

In 1983, three-year-old smallmouth bass made up 26% of the harvest (Table 27; Figure 3), with four-, five- and six-year-olds contributing 21%, 21% and 15% respectively.

Mean length and weight of age-groups of harvested walleye are presented in Table 28. The average total length and total weight of harvested smallmouth bass (all age classes) was 358 mm and 874 g respectively.

Residency Status

Non-residents of Ontario constituted 89% of all anglers in 1983 (Table 29) compared with 87% in 1982. In Sector I for the season, 89% were non-residents and in Sector II 88% were non-residents. In July, 84% of the anglers interviewed were non-residents and 92% of those interviewed in August were non-residents.

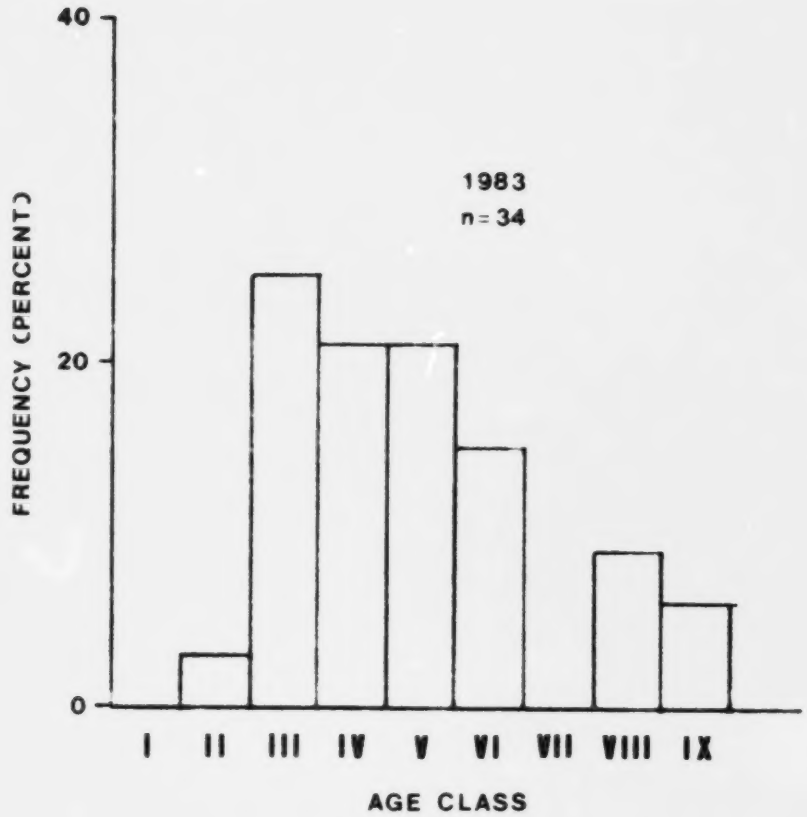


Figure 3. Age frequency histogram for angler harvested smallmouth bass in the Western Basin, Lake Erie, 1983.

## SUMMARY

1. The survey crew conducted 552 boat interviews with angling parties during the 1983 summer creel census (July 1 - August 31) in Sectors I and II of Lake Erie's Western Basin.
2. Anglers exerted an estimated 116,649 ±22,423 (95% C.I.) rod-hours of effort in Sectors I and II of the Western Basin in 1983.
3. Anglers exerted 70% of the total estimated effort in August. The 1983 estimated total effort is a 9% increase over the 1982 estimated total effort.
4. The estimated total catch of all species in 1983 was 117,369 fish of which 51% were harvested.
5. An estimated 47,919 ±12,304 (95% C.I.) walleye were caught in Sectors I and II of the Western Basin in 1983. Anglers kept 84% (40,177) of the captured walleye; the harvested walleye weighed an estimated 34,979 kg.
6. The percent contribution to the total estimated catch and harvest by number of angled fish species were: walleye (41% and 67%, respectively), freshwater drum (33% and <1%), smallmouth bass (18% and 24%), white perch (4% and 3%), white bass (3% and 3%), channel catfish (2% and 2%) and rock bass, yellow perch and carp (each <1% and <1%).
7. Walleye were sought by 89% of the angling parties interviewed and they expended 92% of the total effort spent in the study area.

8. Anglers expressing a preference for walleye (walleye anglers) captured an estimated 0.396 walleye per rod-hour. The best success rate occurred in Sector II during August (0.410 walleye per rod-hour) and the poorest was in Sector I during July (0.360 walleye per rod-hour).
9. The catch per unit of effort for walleye anglers increased from 1978 to 1979 but has decreased each year since then.
10. The 1983 walleye harvest was dominated by three-year-old fish (48% of total) with two- and four-year-olds contributing 24% and 11% respectively. The average total length of harvested walleye was 440 mm and average weight was 871 g.
11. An estimated 20,784 ±10,610 (95% C.I.) smallmouth bass were caught in Sectors I and II of the Western Basin in 1983. Anglers kept 68% of the captured smallmouth bass which weighed an estimated 12,270 kg.
12. Smallmouth bass were sought by 27% of the angling parties interviewed and these anglers expended 33% of the total effort.
13. Smallmouth bass anglers captured an estimated 0.323 smallmouth bass per rod-hour in the study area in 1983. The best success rate occurred in Sector II during August (0.361 smallmouth bass per rod-hour) and the poorest was in Sector I during July (0.162 smallmouth bass per rod-hour).
14. The 1983 smallmouth bass harvest was dominated by three-year-old fish (26% of total smallmouth bass

harvest) with four-, five- and six-year-olds contributing 21%, 21% and 15% respectively. The mean total length of harvested smallmouth bass was 358 mm and the mean weight was 874 g.

15. Non-residents of Ontario represented 89% of the angling parties interviewed during the survey.

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Table 1. Creel census schedule in the Western Basin of Lake Erie, 1983.[a]

| Date | Sector I | Sector II | Date | Sector I | Sector II |
|---|---|---|---|---|---|
| July 1 | | AD | August 1-5 | OFF | |
| July 2 | | AE | August 6 | AE | |
| July 3 | AE | | August 7 | | AE |
| July 4-8 | OFF | | August 8 | AD | |
| July 9 | AE | | August 9 | | AD |
| July 10 | | AE | August 10 | PD | |
| July 11 | PD | | August 11 | | PD |
| July 12 | | PD | August 12 | AD | |
| July 13 | AD | | August 13 | | PE |
| July 14 | | AD | August 14 | PE | |
| July 15 | PD | | August 15-19 | OFF | |
| July 16 | | PE | August 20 | PE | |
| July 17 | PE | | August 21 | | PE |
| July 18-22 | OFF | | August 22 | | AD |
| July 23 | PE | | August 23 | PD | |
| July 24 | | PE | August 24 | | PD |
| July 25 | | PD | August 25 | AD | |
| July 26 | AD | | August 26 | | AD |
| July 27 | | AD | August 27 | | AE |
| July 28 | PD | | August 28 | AE | |
| July 29 | | PD | August 29-31 | OFF | |
| July 30 | | AE | | | |
| July 31 | AE | | | | |

[a] Census-periods and day-types were classified as follows: A=AM, P=PM, D=weekday and E=weekend day.

Table 2. Distribution of angling effort by sector and month in the Western Basin, Lake Erie, 1983.

| Month | Effort[a] | Sector I | Sector II | Total | Percent of total |
|---|---|---|---|---|---|
| July | R | 22,659 | 12,838 | 35,497 | 30 |
| | A | 23,207 | 13,382 | 36,589 | |
| August | R | 38,938 | 42,214 | 81,152 | 70 |
| | A | 39,013 | 42,318 | 81,331 | |
| Total | R | 61,597 | 55,052 | 116,649 | 100 |
| | A | 62,220 | 55,700 | 117,920 | |
| Percent of total | R | 53 | 47 | | 100 |

[a] 'R' is the estimated rod-hours.
'A' is the estimated angler-hours.

Table 3. Distribution of angling effort by sector, area and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Area 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|---|
| July | I | 5,643 | 17,016 | - | - | - | 22,659 |
| | II | 2,347 | 2,6[illegible]4 | 6,425 | 1,392 | 0 | 12,838 |
| August | I | 9,462 | 29,4[illegible]6 | - | - | - | 38,938 |
| | II | 7,187 | 4,4[illegible]5 | 18,187 | 12,366 | 0 | 42,214 |
| Total | I | 15,106 | 46,4[illegible]1 | - | - | - | 61,597 |
| | II | 9,534 | 7,1[illegible]8 | 24,612 | 13,758 | 0 | 55,052 |

[a] Effort estimated in rod-hours.

Table 4. Distribution of angling effort by sector, day-type, census-period and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Day-type: Weekday, Census-period: AM | Weekday, Census-period: PM | Weekend, Census-period: AM | Weekend, Census-period: PM |
|---|---|---|---|---|---|
| July | I | 8,788 | 6,463 | 5,847 | 1,560 |
| | II | 4,165 | 2,593 | 3,618 | 2,462 |
| August | I | 7,981 | 9,996 | 16,520 | 4,441 |
| | II | 14,732 | 3,266 | 11,383 | 12,832 |
| Study period | Study area | 35,667 | 22,318 | 37,369 | 21,295 |
| Percent of total | | 31 | 19 | 32 | 18 |
| (AM + PM)[b] | | 57,985 | | 58,664 | |
| Percent of (AM + PM) | | 50 | | 50 | |

[a] Effort estimated in rod-hours.

[b] Represents the total effort expended on weekdays or on weekends regardless of census-period.

Table 5. Distribution of mean angling effort by sector, day-type, census-period and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Day-type: Weekday, Census-period: AM | Day-type: Weekday, Census-period: PM | Day-type: Weekend day, Census-period: AM | Day-type: Weekend day, Census-period: PM |
|---|---|---|---|---|---|
| July | I | 418 | 308 | 585 | 156 |
| | II | 198 | 123 | 362 | 246 |
| August | I | 347 | 435 | 2,065 | 555 |
| | II | 641 | 142 | 1,423 | 1,604 |
| Study period | I | 381 | 374 | 1,243 | 333 |
| | II | 429 | 133 | 833 | 850 |
| Study period | Study area | 405 | 254 | 1,038 | 592 |
| Study period, study area and census-period | | 329[b] | | 815[b] | |
| Study period, study area, census-period and day-type | | 470[c] | | | |

[a] Effort was estimated in rod-hours and was based on a six-hour fishing period.

[b] Represents the mean angling effort expended during a weekday or weekend day six-hour fishing period regardless of census-period, sector or month.

[c] Represents the mean angling effort expended during a six-hour fishing period regardless of census-period, day-type, sector or month.

Table 6. Distribution of angling effort in the Western Basin, Lake Erie, 1975-1983.[a]

| Month | Sector | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|
| July | I | 16,350 | 31,251 | 28,487 | 32,087 | 7,794 | 11,131 | 25,700 | 22,095 | 22,659 |
| | II | 6,957 | 23,475 | 27,828 | 38,542 | 26,642 | 42,354 | 41,995 | 28,422 | 12,838 |
| August | I | 8,805 | 17,603 | 41,916 | 41,773 | 17,177 | 10,582 | 19,564 | 24,672 | 38,938 |
| | II | 13,734 | 24,847 | 27,948 | 33,696 | 43,942 | 27,170 | 49,140 | 31,378 | 42,214 |
| Study period | I | 25,155 | 48,854 | 70,403 | 73,860 | 24,971 | 21,713 | 45,264 | 46,767 | 61,597 |
| | II | 20,691 | 48,322 | 55,776 | 72,238 | 70,584 | 69,524 | 91,134 | 59,800 | 55,052 |
| Study period | Study area | 45,846 | 97,176 | 126,179 | 146,098 | 95,555 | 91,237 | 136,398 | 106,566 | 116,649 |

[a] Effort was estimated in rod-hours.

Table 7. Catch and harvest estimates (in number) of the sport fishery in the Western Basin of Lake Erie, 1983.

| Species | Sector I Catch | Sector I Harvest | Sector II Catch | Sector II Harvest | Total catch | Total harvest | % Total catch | % Total harvest |
|---|---|---|---|---|---|---|---|---|
| Walleye | 26,060 | 24,027 | 21,859 | 16,150 | 47,919 | 40,177 | 41 | 67 |
| Freshwater drum | 17,770 | 0 | 20,463 | 208 | 38,233 | 208 | 33 | <1 |
| Smallmouth bass | 6,268 | 5,544 | 14,517 | 8,501 | 20,784 | 14,045 | 18 | 24 |
| White perch | 1,991 | 351 | 2,397 | 1,558 | 4,388 | 1,910 | 4 | 3 |
| White bass | 1,651 | 767 | 1,664 | 1,111 | 3,315 | 1,879 | 3 | 3 |
| Channel catfish | 1,139 | 576 | 1,067 | 713 | 2,206 | 1,289 | 2 | 2 |
| Rock bass | 271 | 125 | 56 | 0 | 327 | 125 | <1 | <1 |
| Yellow perch | 81 | 0 | 108 | 108 | 190 | 108 | <1 | <1 |
| Carp | 7 | 7 | 0 | 0 | 7 | 7 | <1 | <1 |
| Total | 55,238 | 31,397 | 62,131 | 28,349 | 117,369 | 59,748 | 101 | 99 |

Table 8. Percentage of anglers seeking particular species in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Species sought | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Walleye | Smallmouth bass | White bass | White perch | Channel catfish | Freshwater drum | Yellow perch | Largemouth bass |
| July | I | 97 | 16 | 8 | 3 | 10 | 0 | 0 | 0 |
| | II | 76 | 26 | 13 | 4 | 7 | 1 | 1 | 1 |
| August | I | 97 | 24 | 8 | 5 | 4 | 0 | 0 | 0 |
| | II | 92 | 39 | 5 | 9 | 5 | 0 | 0 | 0 |
| Study period | Study area | 89 | 27 | 9 | 5 | 7 | <1 | <1 | <1 |

[a] Angler preference was expressed as a percentage of species anglers over all anglers. In some cases anglers sought more than one species, while in others no preference was indicated.

Table 9. Estimated catch (in number) of walleye and other species from the Western Basin, Lake Erie, sport fishery during July and August, 1975-83.

| Sector | Year | Walleye | White bass | Freshwater drum | Smallmouth bass | Yellow perch | Channel catfish | White perch |
|---|---|---|---|---|---|---|---|---|
| I | 1975[a] | 4,778 | 2,549 | 14,194 | 1,996 | 258 | - | 0 |
| | 1976 | 23,619 | 1,154 | 20,052 | 1,438 | 1,508 | 1,238 | 0 |
| | 1977 | 40,283 | 170 | 35,263 | 1,664 | 2,784 | 941 | 0 |
| | 1978 | 48,320 | 694 | 49,405 | 5,243 | 3,830 | 3,092 | 0 |
| | 1979 | 18,048 | 1,008 | 14,460 | 1,587 | 899 | 1,024 | 0 |
| | 1980 | 15,254 | 37 | 15,059 | 1,890 | 984 | 1,088 | 0 |
| | 1981 | 21,981 | 1,025 | 23,005 | 1,941 | 1,235 | 2,556 | 172 |
| | 1982 | 20,795 | 1,287 | 23,279 | 1,852 | 1,247 | 2,777 | 618 |
| | 1983 | 26,060 | 1,651 | 17,770 | 6,268 | 81 | 1,139 | 1,991 |
| II | 1975[a] | 2,929 | 5,947 | 3,901 | 2,705 | 1,760 | - | 0 |
| | 1976 | 26,790 | 731 | 25,146 | 1,332 | 3,721 | 3,555 | 0 |
| | 1977 | 30,278 | 367 | 38,928 | 1,429 | 3,743 | 1,381 | 0 |
| | 1978 | 73,121 | 1,204 | 48,393 | 2,385 | 7,215 | 5,470 | 0 |
| | 1979 | 70,597 | 2,442 | 58,234 | 2,663 | 4,780 | 5,208 | 0 |
| | 1980 | 43,319 | 1,176 | 61,846 | 2,942 | 7,644 | 9,707 | 0 |
| | 1981 | 50,486 | 640 | 35,675 | 4,266 | 3,534 | 5,843 | 0 |
| | 1982 | 29,737 | 2,180 | 38,462 | 6,103 | 3,151 | 5,599 | 1,980 |
| | 1983 | 21,859 | 1,664 | 20,463 | 14,517 | 108 | 1,067 | 2,397 |
| Study area | 1975[a] | 7,707 | 8,496 | 18,095 | 4,701 | 2,018 | - | 0 |
| | 1976 | 50,409 | 1,885 | 45,198 | 2,770 | 5,229 | 4,793 | 0 |
| | 1977 | 70,561 | 537 | 74,191 | 3,093 | 6,527 | 2,322 | 0 |
| | 1978 | 121,441 | 1,898 | 97,798 | 7,628 | 11,045 | 8,562 | 0 |
| | 1979 | 88,645 | 3,450 | 72,694 | 4,250 | 5,679 | 6,232 | 0 |
| | 1980 | 58,573 | 1,213 | 76,905 | 4,832 | 8,628 | 10,795 | 0 |
| | 1981 | 72,467 | 1,666 | 58,680 | 6,206 | 4,770 | 8,400 | 172 |
| | 1982 | 50,532 | 3,467 | 61,741 | 7,955 | 4,398 | 8,376 | 2,598 |
| | 1983 | 47,919 | 3,315 | 38,233 | 20,784 | 190 | 2,206 | 4,388 |

[a] The catch of species other than walleye was taken between June 17 and September 30, 1975.

Table 10. Effort by species anglers expressed as a percentage of total angling effort (rod-hours) in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Species sought | | | | | |
|---|---|---|---|---|---|---|---|
| | | Walleye | Smallmouth bass | Yellow perch | Channel catfish | White bass | White perch |
| July | I | 99 | 16 | 0 | 14 | 7 | 1 |
| | II | 74 | 33 | 1 | 9 | 15 | 6 |
| August | I | 95 | 26 | 0 | 2 | 12 | 5 |
| | II | 92 | 49 | 0 | 4 | 2 | 14 |
| Study period | Study area | 92 | 33 | <1 | 6 | 8 | 8 |

[a] Some anglers sought more than one species while others indicated no preference.

Table 11. Catch per unit of effort (CUE) for walleye caught by sector and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Walleye anglers | All anglers |
|---|---|---|---|
| July | I | 0.360 | 0.346 |
| | II | 0.391 | 0.315 |
| | Study area | 0.373 | 0.332 |
| August | I | 0.407 | 0.383 |
| | II | 0.410 | 0.387 |
| | Study area | 0.408 | 0.385 |
| Study period | I | 0.388 | 0.368 |
| | II | 0.404 | 0.362 |
| Study period | Study area | 0.396 | 0.365 |

[a] CUE represents the observed number of fish caught divided by the observed effort in rod-hours both for walleye anglers and all anglers.

Table 12. Catch per unit of effort (CUE) for walleye caught by sector, area and month[a] in the Western Basin, Lake Erie, 1983.

| Month | Sector | Area 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| July | I | 0.187 | 0.408 | | | |
| | II | 0.187 | 0.242 | 0.625 | 0.303 | -[b] |
| August | I | 0.424 | 0.399 | | | |
| | II | 0.454 | 0.393 | 0.395 | 0.356 | -[b] |

[a] CUE represents the observed number of fish caught by walleye anglers divided by the corresponding observed effort in rod-hours.

[b] No walleye anglers were interviewed in this area.

Table 13. Catch per unit of effort (CUE) for walleye caught by sector and month in the Western Basin, Lake Erie, 1975-83.[a]

| Month | Year | Sector I | Sector II |
|---|---|---|---|
| July | 1975 | 0.148 | 0.130 |
| | 1976 | 0.648 | 0.794 |
| | 1977 | 0.549 | 0.771 |
| | 1978 | 0.871 | 1.107 |
| | 1979 | 0.885 | 1.407 |
| | 1980 | 0.605 | 0.588 |
| | 1981 | 0.470 | 0.602 |
| | 1982 | 0.501 | 0.731 |
| | 1983 | 0.360 | 0.391 |
| August | 1975 | 0.313 | 0.172 |
| | 1976 | 0.224 | 0.347 |
| | 1977 | 0.493 | 0.321 |
| | 1978 | 0.425 | 0.561 |
| | 1979 | 0.532 | 0.729 |
| | 1980 | 0.628 | 0.813 |
| | 1981 | 0.425 | 0.577 |
| | 1982 | 0.368 | 0.404 |
| | 1983 | 0.407 | 0.410 |

[a] CUE represents the observed number of fish caught by walleye anglers divided by the corresponding observed effort in rod-hours.

Table 14. Distribution of the walleye catch by sector and month in the Western Basin, Lake Erie, 1983.

| Month | Sector | Estimated catch (number) | Percent of total catch |
|---|---|---|---|
| July | I | 7,586 | 16 |
| | II | 4,327 | 9 |
| August | I | 18,475 | 39 |
| | II | 17,532 | 37 |
| Study period | I | 26,060 | 54 |
| | II | 21,859 | 46 |
| Study period | Study area | 47,919 | 100 |

Table 15. Distribution of the walleye catch and harvest by sector, area and month in the Western Basin, Lake Erie, 1983.

| Month | Sector | Area | Estimated catch (number) | Percent of total catch | Estimated harvest (number) | Percent kept |
|---|---|---|---|---|---|---|
| July | I | 1 | 848 | 2 | 848 | 100 |
| | | 2 | 6,737 | 14 | 6,280 | 93 |
| | II | 1 | 288 | 1 | 268 | 93 |
| | | 2 | 464 | 1 | 353 | 76 |
| | | 3 | 3,039 | 6 | 2,174 | 72 |
| | | 4 | 536 | 1 | 221 | 41 |
| | | 5 | -[a] | | -[a] | |
| | Study area | | 11,912 | 25 | 10,144 | 85 |
| August | I | 1 | 6,421 | 13 | 6,119 | 95 |
| | | 2 | 12,054 | 25 | 10,780 | 89 |
| | II | 1 | 2,906 | 6 | 2,210 | 76 |
| | | 2 | 1,120 | 2 | 864 | 77 |
| | | 3 | 9,483 | 20 | 6,161 | 65 |
| | | 4 | 4,023 | 8 | 3,899 | 97 |
| | | 5 | -[a] | | -[a] | |
| | Study area | | 36,007 | 75 | 30,033 | 83 |
| Study period | Study area | | 47,919 | 100 | 40,177 | 84 |

[a] Angling parties weren't present within this area during interview periods.

Table 16. Distribution of catch and effort statistics for walleye anglers by day-type in the Western Basin, Lake Erie, 1983.

| Sector | Statistic | Day-type | | | |
|---|---|---|---|---|---|
| | | Weekday | Mean[d] | Weekend day | Mean[d] |
| I | Rod-hours[a] | 31,739 | 721 | 27,743 | 1,541 |
| | Catch[b] | 12,118 | 275 | 13,873 | 771 |
| | Harvest[b] | 11,020 | 250 | 12,944 | 719 |
| | CUE[c] | 0.363 | | 0.417 | |
| II | Rod-hours[a] | 20,299 | 461 | 27,842 | 1,547 |
| | Catch[b] | 8,150 | 185 | 13,172 | 732 |
| | Harvest[b] | 6,394 | 145 | 9,527 | 529 |
| | CUE[c] | 0.396 | | 0.409 | |
| Study area | Rod-hours[a] | 52,038 | 1,182 | 55,585 | 3,088 |
| | Catch[b] | 20,268 | 461 | 27,045 | 1,503 |
| | Harvest[b] | 17,415 | 396 | 22,470 | 1,248 |
| | CUE[c] | 0.375 | | 0.412 | |

[a] Angling effort exerted by walleye anglers only.

[b] Catch and harvest estimates in number of walleye.

[c] CUE's for walleye caught, derived from observed values.

[d] Mean daily estimate of effort (rod-hours). Catch and harvest (by number) based on a six-hour fishing period.

Table 17. Distribution of catch and effort statistics for walleye anglers by census-period in the Western Basin, Lake Erie, 1983.

| Sector | Statistic | Census-period AM | Census-period PM |
|---|---|---|---|
| I | Rod-hours[a] | 37,915 | 21,568 |
| | Catch[b] | 18,042 | 7,948 |
| | Harvest[b] | 16,839 | 7,125 |
| | CUE[c] | 0.438 | 0.360 |
| II | Rod-hours[a] | 27,508 | 20,633 |
| | Catch[b] | 11,921 | 9,402 |
| | Harvest[b] | 8,184 | 7,737 |
| | CUE[c] | 0.373 | 0.431 |

[a] Angling effort exerted by walleye anglers only.

[b] Catch and harvest estimates in number of walleye.

[c] CUE's for walleye caught, derived from observed values.

Table 18. Comparative sport fishery statistics for walleye in the Western Basin, Lake Erie, 1975-83.

| Sector | Statistic | Year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
| I | Rod-hours[a] | 25,154 | 48,854 | 70,403 | 73,860 | 24,971 | 21,713 | 45,264 | 46,767 | 61,597 |
| | Catch[b] | 4,778 | 23,619 | 40,283 | 48,320 | 18,048 | 15,254 | 21,981 | 20,795 | 26,060 |
| | Harvest[b] | 4,458 | 23,225 | 40,043 | 45,325 | 16,079 | 14,292 | 21,653 | 19,749 | 24,027 |
| | % Kept | 93 | 98 | 99 | 94 | 89 | 94 | 99 | 95 | 92 |
| | CUE[c] | 0.190 | 0.484 | 0.572 | 0.654 | 0.723 | 0.703 | 0.486 | 0.445 | 0.423 |
| | CUE[d] | - | - | - | 0.693 | 0.678 | 0.618 | 0.446 | 0.424 | 0.388 |
| II | Rod-hours[a] | 20,692 | 48,322 | 55,776 | 72,238 | 70,584 | 69,524 | 91,134 | 59,800 | 55,052 |
| | Catch[b] | 2,929 | 26,790 | 30,278 | 73,121 | 70,597 | 43,319 | 50,486 | 29,737 | 21,859 |
| | Harvest[b] | 2,719 | 25,804 | 28,911 | 66,733 | 61,686 | 42,064 | 48,146 | 26,309 | 16,150 |
| | % Kept | 93 | 96 | 95 | 91 | 87 | 97 | 95 | 95 | 74 |
| | CUE[c] | 0.142 | 0.554 | 0.543 | 1.012 | 1.000 | 0.623 | 0.554 | 0.497 | 0.397 |
| | CUE[d] | - | - | - | 0.881 | 0.997 | 0.710 | 0.589 | 0.584 | 0.404 |
| Study area | Rod-hours[a] | 45,846 | 97,176 | 129,179 | 146,098 | 95,555 | 91,237 | 136,398 | 106,566 | 116,649 |
| | Catch[b] | 7,707 | 50,949 | 70,561 | 121,441 | 88,646 | 58,573 | 72,467 | 50,532 | 47,919 |
| | Harvest[b] | 7,177 | 49,029 | 68,954 | 112,057 | 77,765 | 56,356 | 69,799 | 48,058 | 40,177 |
| | % Kept | 93 | 96 | 98 | 92 | 88 | 96 | 96 | 95 | 84 |
| | CUE[c] | 0.168 | 0.524 | 0.559 | 0.831 | 0.928 | 0.642 | 0.531 | 0.474 | 0.411 |
| | CUE[d] | - | - | - | 0.758 | 0.886 | 0.672 | 0.515 | 0.498 | 0.396 |

[a] Estimated total angling effort.

[b] Catch and harvest estimates in number of walleye.

[c] CUE for walleye caught by all anglers derived from estimated effort (rod-hours and estimated catch.

[d] CUE for walleye caught by walleye anglers derived from observed effort (rod-hours) and observed catch.

Table 19. Length and weight-at-age of walleye harvested in the sport fishery of the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Statistic | Age-group I | II | III | IV | V | VI | VII | VIII | IX | X | All |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | I | n | | 9 | 23 | 9 | 3 | 2 | | 1 | 1 | 1 | 49 |
| | | $\bar{L}$ | | 379 | 438 | 493 | 508 | 560 | | 635 | 665 | 665 | 460 |
| | | s | | 18.2 | 23.9 | 24.9 | 10.4 | 35.4 | | - | - | - | 71.3 |
| | II | n | 4 | 19 | 16 | 4 | 4 | 4 | | | | | 51 |
| | | $\bar{L}$ | 269 | 365 | 453 | 490 | 519 | 569 | | | | | 423 |
| | | s | 12.5 | 41.5 | 28.5 | 42.4 | 45.5 | 27.8 | | | | | 86.0 |
| August | I | n | | 10 | 37 | 7 | 2 | 2 | | | | | 58 |
| | | $\bar{L}$ | | 377 | 443 | 499 | 513 | 593 | | | | | 446 |
| | | s | | 10.8 | 28.2 | 32.4 | 46.0 | [illegible] | | | | | 52.6 |
| | II | n | 4 | 13 | 24 | 4 | 2 | 3 | | | 1 | | 51 |
| | | $\bar{L}$ | 268 | 385 | 439 | 484 | 530 | 592 | | | 660 | | 432 |
| | | s | 9.6 | 20.5 | 26.5 | 18.9 | 77.8 | 20.2 | | | - | | 80.7 |
| Study period | Study area | n | 8 | 51 | 100 | 24 | 11 | 11 | | 1 | 2 | 1 | 209 |
| | | $\bar{L}$ | 268 | 375 | 442 | 493 | 517 | 578 | | 635 | 663 | 665 | 440 |
| | | s | 10.3 | 29.3 | 26.9 | 28.2 | 39.0 | 25.4 | | - | 3.5 | - | 73.9 |
| | | $\bar{W}$ | 163 | 471 | 825 | 1,179 | 1,355 | 2,000 | | 2,400 | 2,700[b] | 3,100 | 871 |
| | | s | 51.8 | 92.3 | 209.1 | 270.2 | 341.7 | 214.5 | | - | - | - | 491.5 |

[a] Mean total length ($\bar{L}$) and mean total weight ($\bar{W}$) are in mm and g respectively.

[b] Only one of two fish in age-group IX was weighed.

The pooled (n=209) length/weight regression equation is:

$$\text{Log } W(g) = -5.4792 + 3.1687 \log L(mm),\ r=0.95$$

Table 20. Estimated weight of the walleye harvest by age-group in the sport fishery of the Western Basin, Lake Erie, 1983.

| Age-group | Percent frequency | Estimated harvest (number) | Mean weight (kg) | Estimated harvest (kg) |
|---|---|---|---|---|
| I | 3.85 | 1,547 | 0.163 | 252 |
| II | 24.52 | 9,851 | 0.471 | 4,640 |
| III | 48.08 | 19,317 | 0.825 | 15,937 |
| IV | 11.54 | 4,636 | 1.179 | 5,466 |
| V | 5.29 | 2,125 | 1.355 | 2,879 |
| VI | 5.29 | 2,125 | 2.000 | 4,250 |
| VII | 0 | | | |
| VIII | 0.48 | 193 | 2.400 | 463 |
| IX | 0.48 | 193 | 2.700 | 494 |
| X | 0.48 | 193 | 3.100 | 598 |
| All | 100 | 40,177 | 0.871 | 34,979 |

Table 21. Catch per unit of effort (CUE) for smallmouth bass caught by sector and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Smallmouth bass anglers | All anglers |
|---|---|---|---|
| July | I | 0.162 | 0.045 |
| | II | 0.272 | 0.134 |
| | Study area | 0.236 | 0.086 |
| August | I | 0.346 | 0.130 |
| | II | 0.361 | 0.211 |
| | Study area | 0.356 | 0.172 |
| Study period | I | 0.303 | 0.096 |
| | II | 0.335 | 0.184 |
| Study period | Study area | 0.323 | 0.140 |

[a] CUE represents the observed number of fish caught divided by the observed effort in rod-hours both for smallmouth bass anglers and all anglers.

Table 22. Catch per unit of effort (CUE) for smallmouth bass caught by sector, area and month in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Area 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| July | I | 0.392 | 0.122 | | | |
| | II | 0.182 | 0.655 | 0.320 | 0.217 | -[b] |
| August | I | 0.096 | 0.427 | | | |
| | II | 0.385 | 0.466 | 0.295 | 0.147 | -[b] |

[a] CUE represents the observed number of fish caught by smallmouth bass anglers divided by the corresponding observed effort in rod-hours.

[b] No smallmouth bass anglers were interviewed in this area.

Table 23. Distribution of the smallmouth bass catch by sector and month in the Western Basin, Lake Erie, 1983.

| Month | Sector | Estimated catch (number) | Percent of total catch |
|---|---|---|---|
| July | I | 1,183 | 6 |
| | II | 2,136 | 10 |
| August | I | 5,085 | 24 |
| | II | 12,380 | 60 |
| Study period | I | 6,268 | 30 |
| | II | 14,517 | 70 |
| Study period | Study area | 20,784 | 100 |

Table 24. Distribution of the smallmouth bass catch and harvest by sector, area and month in the Western Basin, Lake Erie, 1983.

| Month | Sector | Area | Estimated catch (number) | Percent of total catch | Estimated harvest (number) | Percent kept |
|---|---|---|---|---|---|---|
| July | I | 1 | 593 | 3 | 459 | 77 |
| | | 2 | 590 | 3 | 315 | 53 |
| | II | 1 | 437 | 2 | 338 | 77 |
| | | 2 | 779 | 4 | 565 | 73 |
| | | 3 | 578 | 3 | 399 | 69 |
| | | 4 | 343 | 2 | 280 | 82 |
| | | 5 | -[a] | | -[a] | |
| | Study area | | 3,319 | 16 | 2,356 | 71 |
| August | I | 1 | 127 | 1 | 95 | 75 |
| | | 2 | 4,958 | 24 | 4,675 | 94 |
| | II | 1 | 2,978 | 14 | 2,683 | 90 |
| | | 2 | 1,567 | 8 | 1,540 | 98 |
| | | 3 | 2,188 | 11 | 2,088 | 95 |
| | | 4 | 5,647 | 27 | 607 | 11 |
| | | 5 | -[a] | | -[a] | |
| | Study area | | 17,465 | 84 | 11,689 | 67 |
| Study period | Study area | | 20,784 | 100 | 14,045 | 68 |

[a] Angling parties weren't present within this area during interview periods.

Table 25. Distribution of catch and effort statistics for smallmouth bass anglers by day-type in the Western Basin, Lake Erie, 1983.

| Sector | Statistic | Day-type | | | |
|---|---|---|---|---|---|
| | | Weekday | Mean[d] | Weekend | Mean[d] |
| I | Rod-hours[a] | 7,754 | 176 | 6,048 | 336 |
| | Catch[b] | 3,143 | 71 | 2,121 | 118 |
| | Harvest[b] | 3,076 | 70 | 2,111 | 117 |
| | CUE[c] | 0.351 | - | 0.265 | - |
| II | Rod-hours[a] | 9,912 | 225 | 14,984 | 832 |
| | Catch[b] | 4,61[illegible] | 105 | 4,222 | 235 |
| | Harvest[b] | 4,36[illegible] | 99 | 4,146 | 230 |
| | CUE[c] | 0.30[illegible] | - | 0.350 | - |
| Study area | Rod-hours[a] | 17,66[illegible] | 402 | 21,031 | 1,168 |
| | Catch[b] | 7,761 | 176 | 6,343 | 352 |
| | Harvest[b] | 7,439 | 169 | 6,257 | 348 |
| | CUE[c] | 0.326 | - | 0.322 | - |

[a] Angling effort exerted by s[illegible]allmouth bass anglers only.

[b] Catch and harvest estimates in number of smallmouth bass.

[c] CUE's for smallmouth bass caught, derived from observed values.

[d] Mean daily estimate of effort (rod-hours). Catch and harvest (by number) based on a six-hour fishing period.

Table 26. Distribution of catch and effort statistics for smallmouth bass anglers by census-period in the Western Basin, Lake Erie, 1983.

| Sector | Statistic | Census-period AM | Census-period PM |
|---|---|---|---|
| I | Rod-hours[a] | 7,312 | 6,489 |
| | Catch[b] | 3,036 | 2,227 |
| | Harvest[b] | 2,994 | 2,192 |
| | CUE[c] | 0.334 | 0.291 |
| II | Rod-hours[a] | 13,017 | 11,879 |
| | Catch[b] | 5,537 | 3,303 |
| | Harvest[b] | 5,308 | 3,202 |
| | CUE[c] | 0.428 | 0.274 |

[a] Angling effort exerted by smallmouth bass anglers only.

[b] Catch and harvest estimates in number of smallmouth bass.

[c] CUE's for smallmouth bass caught, derived from observed values.

Table 27. Estimated weight of the smallmouth bass harvest by age-group in the sport fishery of the Western Basin, Lake Erie, 1983.

| Age-group | Percent frequency | Estimated harvest (number) | Mean weight (kg) | Estimated harvest (kg) |
|---|---|---|---|---|
| II | 2.94 | 413 | 0.300 | 124 |
| III | 26.47 | 3,718 | 0.500 | 1,859 |
| IV | 20.59 | 2,892 | 0.686 | 1,984 |
| V | 20.59 | 2,892 | 0.800 | 2,314 |
| VI | 14.71 | 2,066 | 1.140 | 2,355 |
| VII | | | | |
| VIII | 8.82 | 1,239 | 1.600 | 1,982 |
| IX | 5.88 | 826 | 2.000 | 1,652 |
| All | 100.0 | 14,045 | 0.874 | 12,270 |

Table 28. Length and weight-at-age of smallmouth bass harvested in the sport fishery of the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Statistic | Age-group II | III | IV | V | VI | VII | VIII | IX | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| July | I | $n$ | | 2 | 1 | 3 | | | | | 6 |
| | | $\bar{L}$ | | 303 | 335 | 353 | | | | | 333 |
| | | s | | 17.7 | - | 11.6 | | | | | 27.1 |
| | II | $n$ | 1 | 4 | 3 | 1 | 3 | | 2 | 1 | 15 |
| | | $\bar{L}$ | 250 | 311 | 350 | 370 | 397 | | 450 | 470 | 365 |
| | | s | - | 14.4 | 10.0 | - | 17.6 | | 0.0 | - | 62.9 |
| August | I | $n$ | | 2 | 3 | 2 | | | | | 7 |
| | | $\bar{L}$ | | 293 | 345 | 350 | | | | | 331 |
| | | s | | 5.5 | 8.7 | 21.2 | | | | | 28.5 |
| | II | $n$ | | 1 | | 1 | 2 | | 1 | 1 | 6 |
| | | $\bar{L}$ | | 285 | | 405 | 398 | | 440 | 460 | 398 |
| | | s | | - | | - | 10.6 | | - | - | 60.9 |
| Study period | Study area | $n$ | 1 | 9 | 7 | 7 | 5 | | 3 | 2 | 34 |
| | | $\bar{L}$ | 250 | 302 | 346 | 362 | 397 | | 447 | 465 | 358 |
| | | s | - | 14.8 | 9.3 | 22.9 | 13.5 | | 5.8 | 7.1 | 55.4 |
| | | $\bar{w}$ | 300 | 500 | 686 | 800 | 1,140 | | 1,600 | 2,000 | 874 |
| | | s | - | 111.8 | 90.0 | 152.8 | 151.7 | | 360.6 | 141.4 | 460.8 |

[a] Mean total length ($\bar{L}$) and mean total weight ($\bar{w}$) are in mm and g respectively. The pooled (n=34) length/weight regression equation is:

$$\text{Log } W(g) = -5.0250 + 3.1007 \log L(mm), \; r=0.93$$

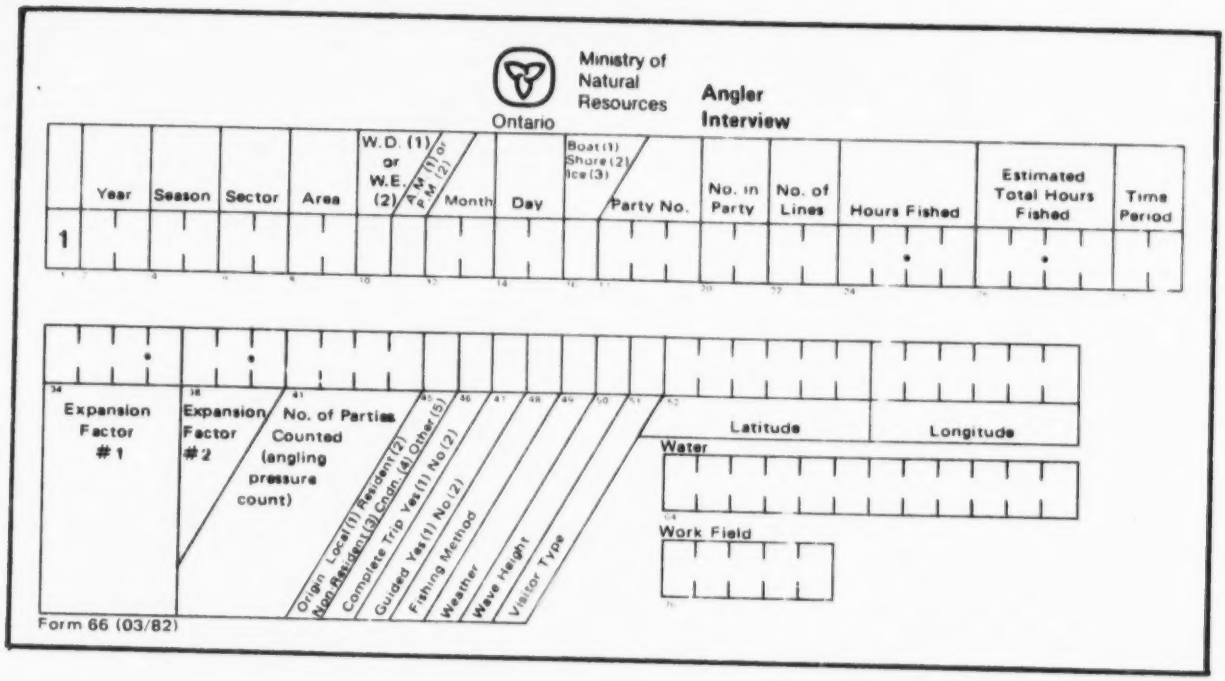
Table 29. Residency status of anglers in the Western Basin, Lake Erie, 1983.[a]

| Month | Sector | Residency status | Number of interviews | Percent of total |
|---|---|---|---|---|
| July | I | NR | 306 | |
| | | R | 46 | |
| | II | NR | 359 | |
| | | R | 84 | |
| | Study area | NR | 665 | 84 |
| | | R | 130 | 16 |
| August | I | NR | 429 | |
| | | R | 41 | |
| | II | NR | 541 | |
| | | R | 39 | |
| | Study area | NR | 970 | 92 |
| | | R | 80 | 8 |
| Study period | I | NR | 735 | 89 |
| | | R | 87 | 11 |
| | II | NR | 900 | 88 |
| | | R | 123 | 12 |
| Study period | Study area | NR | 1,635 | 89 |
| | | R | 210 | 11 |

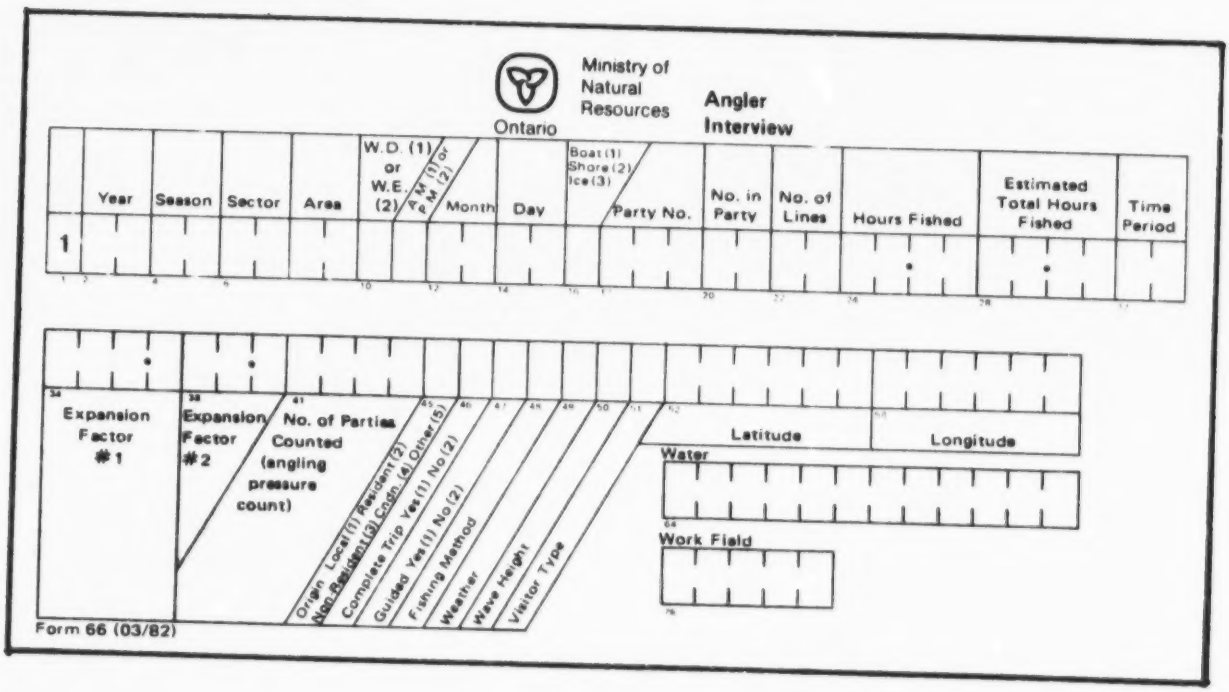
[a] "Resident" (R) applied to anglers living in Ontario, while "Non-Resident" (NR) applied to all other anglers. Historically most non-residents were citizens of the United States.

# Appendix I: Field forms.

## 1. Angler interview form.




Reverse side.



2. Boat count form.

**INSTANTANEOUS BOAT COUNT**

Sector ☐ Boat Count No. ☐ Day ☐☐ Month ☐☐ Year ☐☐

| Area | No. of Boats Counted | | | Count Time | |
|---|---|---|---|---|---|
| | Sailing | Pleasure | Fishing | Start (hrs.) | End (hrs.) |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

If part of area not counted give reason:

L.E.F.A.U. (04/80)

3. Weather and water report form.

**WEATHER AND WATER REPORT**

| | | AREA | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| | LAT. | | | | | |
| | LONG. | | | | | |
| TIME: AM PM | EXACT | | | | | |
| TEMPERATURE: | AIR | | | | | |
| (°C) | WATER | | | | | |
| WATER SURFACE | | | | | | |
| WAVE HEIGHT (m) | | | | | | |
| CLOUD COVER (%) | | | | | | |
| WIND: DIRECTION | | | | | | |
| STRENGTH | (Knots) | | | | | |

COMMENTS:

Appendix II: Computational methods (Petzold 1980).

The total estimated harvest (caught minus released) of a species in a stratum ($T_h$) was calculated as follows:

$$T_h = \frac{D_h}{d_h} \sum_{i}^{d_h} \hat{r}_{hi} \; N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{y}}_{hi}$$

where

$D_h$ = the number of days in stratum h

$d_h$ = the number of days sampled in stratum h

$\hat{r}_{hi}$ = the sample catch per unit of effort on the i'th day for all anglers interviewed

$\hat{\bar{x}}_{hi}$ = the sample mean number of boats per instantaneous boat count on the i'th day

$\hat{\bar{y}}_{hi}$ = the sample mean number of rods per boat on the i'th day

$\hat{\bar{z}}_{hi}$ = the sample mean number of anglers per boat on the i'th day

$N_{hi}$ = the number of fishing hours in the sampling period

The sample catch per unit of effort ($\hat{r}_{hi}$), the sample mean number of boats per boat count ($\hat{\bar{x}}_{hi}$) and the sample mean number of rods per boat ($\hat{\bar{y}}_{hi}$) were calculated as follows:

$$\hat{r}_{hi} = \frac{\sum_{j}^{n_{hi}} c_{hij}}{\sum_{j}^{n_{hi}} e_{hij}}$$

$$\hat{\bar{x}}_{hi} = \frac{\sum_{j}^{m_{hi}} x_{hij}}{m_{hi}}$$

$$\hat{\bar{y}}_{hi} = \frac{\sum_{j}^{n_{hi}} y_{hij}}{n_{hi}}$$

where

$c_{hij}$ = the number of fish kept by the j'th sampled party on the i'th day

$e_{hij}$ = the number of rod-hours fished by the j'th sampled party on the i'th day

$n_{hi}$ = the number of parties interviewed on the i'th day

$x_{hij}$ = the number of boats counted on the j'th boat count

$m_{hi}$ = the number of boat counts on the i'th day

$y_{hij}$ = the number of rods in the j'th party

The estimated total catch of a species, Tc (i.e., those kept plus those released) was estimated in the same manner as for harvest except $\hat{\bar{r}}_{hi}$ was calculated using all fish caught.

The total rod-hours in a stratum ($E_h$) and angler-hours ($A_h$) in a stratum (h) were calculated as:

$$E_h = \frac{D_h}{d_h} \sum_{i}^{d_h} N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{y}}_{hi}$$

$$A_h = \frac{D_h}{d_h} \sum_{i}^{d_h} N_{hi} \; \hat{\bar{x}}_{hi} \; \hat{\bar{z}}_{hi}$$

Appendix III: Common and scientific names of fish species reported during the creel census in the Western Basin, Lake Erie, 1983.

| Common name | Scientific name[a] |
|---|---|
| Channel catfish | Ictalurus punctatus (Rafinesque) |
| White bass | Morone chrysops (Rafinesque) |
| Rock bass | Ambloplites rupestris (Rafinesque) |
| Smallmouth bass | Micropterus dolomieui Lacepède |
| Yellow perch | Perca flavescens (Mitchill) |
| Walleye | Stizostedion vitreum vitreum (Mitchill) |
| Freshwater drum | Aplodinotus grunniens Rafinesque |
| Common carp | Cyprinus carpio Linnaeus |
| White perch | Morone americana (Gmelin) |

[a] After Robins et al. 1980.

Appendix IV: Monthly summaries of effort, catch per unit effort (CUE), catch and harvest.

Explanatory Notes:

1. Sector 1 and 2 represents the Western Basin.

2. Computer codes denoting season are 7 for July and 8 for August.

3. Computer codes denoting day-type are 1 for weekday and 2 for weekend days.

4. Computer codes denoting time are 1 for AM (0900-1400 h) and 2 for PM (1400-1900 h).

5. Multiple numerical codes indicate pooling of strata.

6. A 'Dummy' encountered in the species variable list is an integral part of the computer program used to indicate that either (1) a party was interviewed that was not seeking any species in particular and had not caught any fish or that (2) a boat count had been undertaken with zero boats observed.

7. SE represents standard error of estimate.
Note: A minimum of two sampling days is required to calculate a standard error of estimate for any given stratum. This condition was met by all strata and reported SE's are valid.

SUMMARY FOR:

SECTOR 1 2
AREA 1 2 3 4 5
MONTH 7 8
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- CENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 134 | 552 | 3.44 | 3.37 | 5420 | 5318 | 1179201 | 113461 | 1166491 | 112681 | 210 | 1635 | 253 | 7.36 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. (SE) CATCH | ESTIM. (SE) HARVEST |
|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 1590 | 9 | 0.299 | 0.002 | 0.323 | 0.002 | 38233( 5992) | 208( 144) |
| WALLEYE | 334 | 1942 | 1650 | 0.365 | 0.310 | 0.411 | 0.344 | 47919( 6183) | 40177( 5233) |
| Y. PERC | 331 | 7 | 3 | 0.001 | 0.001 | 0.002 | 0.001 | 190( 87) | 108( 74) |
| L. BASS | 317 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| S. BASS | 316 | 744 | 624 | 0.140 | 0.117 | 0.179 | 0.120 | 20784( 5332) | 14045( 3001) |
| W. BASS | 311 | 16 | 7 | 0.003 | 0.001 | 0.003 | 0.001 | 327( 136) | 125( 88) |
| W. BASS | 302 | 213 | 106 | 0.040 | 0.020 | 0.023 | 0.016 | 3315( 541) | 1879( 367) |
| W. PERC | 301 | 206 | 89 | 0.039 | 0.017 | 0.039 | 0.016 | 4389( 809) | 1910( 408) |
| C. CATF | 234 | 135 | 71 | 0.026 | 0.013 | 0.019 | 0.011 | 2206( 399) | 1289( 287) |
| CARP | 196 | 1 | 1 | 0.000 | 0.000 | 0.000 | 0.000 | 7( 7) | 7( 7) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. (SE) CATCH | ESTIM. (SE) HARVEST | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. (SE) ROD-HRS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEEPHE | 371 | 5 | 0 | 0.417 | 0.000 | 0.417 | 0.000 | 23( 20) | 0( 0) | 1 | 12 | 56 | 47 |
| WALLEYE | 334 | 1240 | 1650 | 0.396 | 0.337 | 0.440 | 0.371 | 47313( 6012) | 39885( 5205) | 492 | 4902 | 107624 | 11161 |
| Y. PERC | 331 | 2 | 2 | 0.250 | 0.250 | 0.250 | 0.250 | 43( 39) | 43( 39) | 1 | 8 | 173 | 154 |
| L. BASS | 317 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) | 1 | 1 | 32 | 29 |
| S. BASS | 316 | 645 | 621 | 0.323 | 0.311 | 0.364 | 0.354 | 14104( 2734) | 13696( 2728) | 150 | 1994 | 38697 | 5399 |
| W. BASS | 302 | 86 | 78 | 0.163 | 0.149 | 0.253 | 0.234 | 2269( 507) | 2098( 486) | 47 | 527 | 8963 | 1598 |
| W. PERC | 301 | 82 | 82 | 0.216 | 0.216 | 0.234 | 0.234 | 2055( 509) | 2055( 509) | 29 | 379 | 8774 | 1650 |
| C. CATF | 234 | 71 | 69 | 0.150 | 0.146 | 0.254 | 0.246 | 1725( 454) | 1672( 453) | 36 | 472 | 6798 | 1495 |

SUMMARY FOR:
SECTOR 1
MONTH 7
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- DENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 119 | 3.19 | 3.07 | 1104 | 1058 | 23207( | 7288) | 22659( | 7184) | 46 | 303 | 32 | 11.22 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) |
|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 365 | 0 | 0.345 | 0.000 | 0.365 | 0.000 | 8279( 1811) | 0( 0) |
| WALLEYE | 334 | 366 | 339 | 0.346 | 0.320 | 0.335 | 0.315 | 7586( 2056) | 7128( 1867) |
| Y. PERC | 331 | 3 | 0 | 0.003 | 0.000 | 0.003 | 0.000 | 62( 43) | 0( 0) |
| S. BASS | 315 | 48 | 26 | 0.045 | 0.025 | 0.052 | 0.034 | 1183( 342) | 774( 291) |
| R. BASS | 311 | 10 | 7 | 0.009 | 0.007 | 0.009 | 0.006 | 171( 114) | 125( 88) |
| W. BASS | 302 | 46 | 15 | 0.043 | 0.014 | 0.033 | 0.009 | 755( 343) | 197( 106) |
| W. PERC | 301 | 35 | 10 | 0.033 | 0.009 | 0.027 | 0.006 | 605( 230) | 141( 118) |
| C. CATF | 234 | 42 | 23 | 0.040 | 0.022 | 0.041 | 0.022 | 936( 343) | 506( 155) |
| CARP | 186 | 1 | 1 | 0.001 | 0.001 | 0.000 | 0.000 | 7( 7) | 7( 7) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WALLEYE | 334 | 366 | 339 | 0.360 | 0.333 | 0.340 | 0.320 | 7621( 2052) | 7163( 1862) | 114 | 1017 | 22403 7206 |
| S. BASS | 316 | 28 | 26 | 0.162 | 0.150 | 0.250 | 0.235 | 895( 316) | 843( 300) | 19 | 173 | 3582 1610 |
| W. BASS | 302 | 23 | 15 | 0.180 | 0.119 | 0.235 | 0.127 | 357( 190) | 198( 120) | 10 | 129 | 1559 857 |
| W. PERC | 301 | 10 | 10 | 0.364 | 0.364 | 0.280 | 0.280 | 94( 78) | 94( 78) | 3 | 28 | 336 201 |
| C. CATF | 234 | 23 | 23 | 0.163 | 0.163 | 0.194 | 0.194 | 597( 199) | 597( 199) | 12 | 141 | 3079 1206 |

SUMMARY FOR:

SECTOR 1
MONTH 9
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- DENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 120 | 3.92 | 3.90 | 1636 | 1622 | 330137 | 61111 | 329367 | 61144 | 41 | 420 | 32 | 17.72 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) |
|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 391 | 0 | 0.241 | 0.000 | 0.244 | 0.000 | 2423( 2479) | 0( 0) |
| WALLEYE | 334 | 621 | 570 | 0.383 | 0.352 | 0.474 | 0.434 | 15475( 4111) | 16899( 4049) |
| S. BASS | 316 | 210 | 191 | 0.130 | 0.118 | 0.000 | 0.000 | 19( 17) | 0( 0) |
| R. BASS | 311 | 5 | 0 | 0.003 | 0.000 | 0.131 | 0.122 | 5085( 2273) | 4770( 2241) |
| W. BASS | 302 | 36 | 15 | 0.022 | 0.009 | 0.003 | 0.000 | 100( 54) | 0( 0) |
| W. PERC | 301 | 50 | 7 | 0.031 | 0.004 | 0.023 | 0.015 | 896( 250) | 570( 129) |
| C. CATF | 234 | 21 | 6 | 0.013 | 0.004 | 0.035 | 0.005 | 1396( 597) | 211( 123) |
| | | | | | | 0.005 | 0.002 | 203( 67) | 67( 32) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WALLEYE | 334 | 621 | 570 | 0.407 | 0.374 | 0.495 | 0.453 | 193700( 41371) | 168021( 40655) | 116 | 1526 | 37079 6012 |
| S. BASS | 316 | 193 | 191 | 0.346 | 0.343 | 0.427 | 0.425 | 4369( 1810) | 4343( 1826) | 29 | 557 | 10219 2886 |
| W. BASS | 302 | 15 | 15 | 0.093 | 0.083 | 0.210 | 0.210 | 945( 340) | 945( 340) | 9 | 181 | 4494 1103 |
| W. PERC | 301 | 7 | 7 | 0.112 | 0.112 | 0.233 | 0.233 | 418( 281) | 418( 281) | 6 | 62 | 1798 924 |
| C. CATF | 234 | 6 | 6 | 0.082 | 0.082 | 0.262 | 0.262 | 229( 173) | 229( 173) | 5 | 73 | 874 353 |

SUMMARY FOR:
SECTOR 1
MONTH 7
AREA 1 2
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI-DENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 119 | 3.19 | 3.07 | 1104 | 1058 | 232577 | 72881 | 226597 | 71841 | 46 | 305 | 32 | 11.22 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH | (SE) | ESTIM. HARVEST | (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0 | 0 | 0 | 0 |
| SHEEPHE | 371 | 365 | 0 | 0.345 | 0.000 | 0.365 | 0.000 | 8279 | 1811 | 0 | 0 |
| WALLEYE | 334 | 366 | 339 | 0.345 | 0.320 | 0.335 | 0.315 | 7585 | 2056 | 7128 | 1867 |
| Y. PERC | 331 | 3 | 0 | 0.003 | 0.000 | 0.003 | 0.000 | 62 | 43 | 0 | 0 |
| S. BASS | 315 | 48 | 26 | 0.045 | 0.025 | 0.052 | 0.034 | 1183 | 342 | 774 | 291 |
| R. BASS | 311 | 10 | 7 | 0.009 | 0.007 | 0.009 | 0.006 | 171 | 114 | 125 | 88 |
| W. BASS | 302 | 46 | 15 | 0.043 | 0.014 | 0.033 | 0.009 | 755 | 343 | 197 | 106 |
| W. PERC | 301 | 35 | 10 | 0.033 | 0.009 | 0.027 | 0.006 | 605 | 230 | 141 | 118 |
| C. CATF | 234 | 42 | 23 | 0.040 | 0.022 | 0.041 | 0.022 | 935 | 343 | 505 | 155 |
| CARP | 186 | 1 | 1 | 0.001 | 0.001 | 0.000 | 0.000 | 7 | 7 | 7 | 7 |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH | (SE) | ESTIM. HARVEST | (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS | (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WALLEYE | 334 | 366 | 339 | 0.360 | 0.333 | 0.340 | 0.320 | 7621 | 2052 | 7163 | 1862 | 114 | 1017 | 22403 | 7206 |
| S. BASS | 316 | 28 | 26 | 0.162 | 0.150 | 0.250 | 0.235 | 895 | 316 | 843 | 300 | 19 | 173 | 3582 | 1610 |
| W. BASS | 302 | 23 | 15 | 0.180 | 0.118 | 0.235 | 0.127 | 357 | 190 | 198 | 120 | 10 | 129 | 1559 | 857 |
| W. PERC | 301 | 10 | 10 | 0.364 | 0.364 | 0.280 | 0.280 | 94 | 78 | 94 | 78 | 3 | 28 | 336 | 201 |
| C. CATF | 234 | 23 | 23 | 0.163 | 0.163 | 0.194 | 0.194 | 597 | 199 | 597 | 199 | 12 | 141 | 3079 | 1206 |

SUMMARY FOR:

| | | |
|---|---|---|
| SECTOR | 1 | |
| MONTH | 9 | |
| AREA | 1 | 2 |
| DAY-TYPE | 1 | 2 |
| TIME-PERIOD | 1 | 2 |

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- DUALS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 120 | 3.92 | 3.20 | 1636 | 1322 | 330137 | 61111 | 266387 | 61164 | 41 | 420 | 32 | 17.72 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) |
|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 391 | 0 | 0.241 | 0.000 | 0.244 | 0.000 | 2423( 2479) | 0( 0) |
| WALLEYE | 334 | 621 | 570 | 0.383 | 0.352 | 0.474 | 0.434 | 19475( 4111) | 16899( 4049) |
| Y. PERC | 331 | 1 | 0 | 0.001 | 0.000 | 0.000 | 0.000 | 19( 17) | 0( 0) |
| S. BASS | 315 | 210 | 191 | 0.130 | 0.118 | 0.131 | 0.122 | 5085( 2273) | 4770( 2241) |
| R. BASS | 311 | 5 | 0 | 0.003 | 0.000 | 0.003 | 0.000 | 100( 54) | 0( 0) |
| W. BASS | 302 | 36 | 15 | 0.022 | 0.009 | 0.023 | 0.015 | 896( 250) | 570( 129) |
| W. PERC | 301 | 50 | 7 | 0.031 | 0.004 | 0.035 | 0.005 | 1396( 597) | 211( 123) |
| C. CATF | 234 | 21 | 6 | 0.013 | 0.004 | 0.005 | 0.002 | 203( 67) | 67( 32) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WALLEYE | 334 | 621 | 570 | 0.407 | 0.374 | 0.495 | 0.453 | 193701( 41371) | 168021( 40265) | 116 | 1526 | 37070 6012 |
| S. BASS | 315 | 193 | 191 | 0.346 | 0.343 | 0.427 | 0.425 | 4369( 1810) | 4343( 1826) | 29 | 557 | 10219 2886 |
| W. BASS | 302 | 15 | 15 | 0.093 | 0.083 | 0.210 | 0.210 | 945( 340) | 945( 340) | 9 | 181 | 4494 1103 |
| W. PERC | 301 | 7 | 7 | 0.112 | 0.112 | 0.233 | 0.233 | 418( 281) | 418( 281) | 6 | 62 | 1798 924 |
| C. CATF | 234 | 6 | 6 | 0.082 | 0.082 | 0.262 | 0.262 | 229( 173) | 229( 173) | 5 | 73 | 874 353 |

SUMMARY FOR:

SECTOR 2
MONTH 7
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- DENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 134 | 2.00 | 2.76 | 959 | 921 | 133427 | 22091 | 126347 | 22141 | 84 | 150 | 105 | 2.89 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) |
|---|---|---|---|---|---|---|---|---|---|
| DUMMY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 270 | 9 | 0.293 | 0.010 | 0.324 | 0.016 | 4159( 866) | 208( 144) |
| WALLEYE | 334 | 290 | 235 | 0.315 | 0.255 | 0.337 | 0.235 | 4327( 1516) | 3016( 1059) |
| Y. PERC | 331 | 3 | 3 | 0.003 | 0.003 | 0.009 | 0.008 | 108( 74) | 108( 74) |
| L. BASS | 317 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| S. BASS | 316 | 123 | 85 | 0.134 | 0.092 | 0.166 | 0.123 | 2136( 451) | 1582( 404) |
| W. BASS | 302 | 101 | 64 | 0.110 | 0.070 | 0.091 | 0.058 | 1039( 293) | 739( 269) |
| W. PERC | 301 | 32 | 10 | 0.035 | 0.011 | 0.033 | 0.012 | 421( 133) | 154( 70) |
| C. CATF | 234 | 52 | 25 | 0.056 | 0.027 | 0.049 | 0.024 | 626( 124) | 308( 124) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEEPHE | 371 | 5 | 0 | 0.417 | 0.000 | 0.417 | 0.000 | 231( 20) | 0( 0) | 1 | 12 | 56 47 |
| WALLEYE | 334 | 289 | 235 | 0.391 | 0.319 | 0.455 | 0.319 | 4330( 1509) | 3032( 1048) | 124 | 736 | 9514 1961 |
| Y. PERC | 331 | 2 | 2 | 0.250 | 0.250 | 0.250 | 0.250 | 43( 39) | 43( 39) | 1 | 8 | 173 154 |
| L. BASS | 317 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) | 1 | 1 | 32 29 |
| S. BASS | 316 | 92 | 82 | 0.272 | 0.225 | 0.365 | 0.294 | 1545( 443) | 1243( 329) | 43 | 365 | 4233 926 |
| W. BASS | 302 | 37 | 37 | 0.226 | 0.226 | 0.329 | 0.329 | 627( 290) | 627( 290) | 21 | 164 | 1906 723 |
| W. PERC | 301 | 10 | 10 | 0.175 | 0.175 | 0.402 | 0.402 | 319( 172) | 319( 172) | 7 | 57 | 793 464 |
| C. CATF | 234 | 26 | 24 | 0.172 | 0.159 | 0.293 | 0.236 | 320( 136) | 268( 122) | 11 | 151 | 1134 542 |

SUMMARY FOR:

SECTOR 2
MONTH 8
AREA 1 2 3 4 5
DAY-TYPE 1 2
TIME-PERIOD 1 2

| NUMBER SAMPLING PERIODS | NUMBER PARTIES INTERV. | MEAN ANG/ PARTY | MEAN RODS/ PARTY | OBSERVED ANGLER HOURS | OBSERVED ROD HOURS | ESTIM. ANGLER HOURS | STD. ERROR | ESTIM. ROD HOURS | STD. ERROR | NO. RESI- DENTS | NO. NON RES. | NUMBER PARTY COUNTS | MEAN PARTIES/ COUNT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 150 | 3.87 | 3.85 | 1721 | 1717 | 42319( | 5744) | 42214( | 5752) | 39 | 541 | 94 | 7.55 |

CATCH SUMMARY(ALL FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) |
|---|---|---|---|---|---|---|---|---|---|
| DUNNY | 999 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0( 0) | 0( 0) |
| SHEEPHE | 371 | 564 | 0 | 0.329 | 0.000 | 0.396 | 0.000 | 16305( 5073) | 0( 0) |
| WALLEYE | 334 | 665 | 506 | 0.397 | 0.295 | 0.415 | 0.311 | 17532( 3848) | 13134( 2527) |
| S. BASS | 316 | 363 | 322 | 0.211 | 0.189 | 0.293 | 0.164 | 12380( 4790) | 6915( 1933) |
| R. BASS | 311 | 1 | 0 | 0.001 | 0.000 | 0.001 | 0.000 | 56( 48) | 0( 0) |
| W. BASS | 302 | 30 | 12 | 0.017 | 0.007 | 0.015 | 0.009 | 625( 181) | 373( 185) |
| W. PERC | 301 | 99 | 62 | 0.052 | 0.036 | 0.047 | 0.033 | 1976( 499) | 1405( 364) |
| C. CATF | 234 | 21 | 17 | 0.012 | 0.010 | 0.010 | 0.010 | 441( 146) | 405( 162) |

CATCH SUMMARY(SPECIES FISHERMEN)

| SPECIES | CODE | OBS. CATCH | OBS. KEPT | OBSERVED CATCH/ RD-HR | OBSERVED KEPT/ RD-HR | WEIGHTED CATCH/ RD-HR | WEIGHTED KEPT/ RD-HR | ESTIM. CATCH (SE) | ESTIM. HARVEST (SE) | NUMBER PARTIES | OBS. ROD-HRS | ESTIM. ROD-HRS (SE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WALLEYE | 334 | 665 | 506 | 0.410 | 0.312 | 0.440 | 0.334 | 16993( 3542) | 12880( 2411) | 136 | 1623 | 38627 5711 |
| S. BASS | 316 | 325 | 322 | 0.361 | 0.358 | 0.353 | 0.352 | 7294( 1975) | 7267( 1977) | 59 | 900 | 20663 4167 |
| W. BASS | 302 | 11 | 11 | 0.204 | 0.204 | 0.327 | 0.327 | 329( 147) | 328( 147) | 7 | 54 | 1005 282 |
| W. PERC | 301 | 55 | 55 | 0.237 | 0.237 | 0.209 | 0.209 | 1223( 390) | 1223( 380) | 13 | 233 | 5946 1270 |
| C. CATF | 234 | 15 | 16 | 0.150 | 0.150 | 0.333 | 0.338 | 579( 344) | 579( 344) | 8 | 107 | 1711 611 |